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METALS

SECTION 05500

DOORS AND MISCELLANEOUS METALS

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SECTION 05500

DOORS AND MISCELLANEOUS METALS

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36	(1990) Structural Steel
ASTM A 53	(1990a) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
ASTM A 123	(1989a) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 325	(1988a) High-Strength Bolts for Structural Steel Joints
ASTM A 446	(1989) Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
ASTM A 500	(1990) Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
ASTM A 525	(1990) Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1	(1990) Structural Welding Code - Steel

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL DESCRIPTIONS:

SD-04 Drawings

Miscellaneous Metal Items; [ ].

Detail drawings indicating material thickness, type, grade, and class;

dimensions; and construction details. Drawings shall include catalog cuts, erection details, manufacturer's descriptive data and installation instructions, and templates. Detail drawings for the following items: [_____]

SD-14 Samples

Miscellaneous Metal Items; [_____].

Samples shall be full size, taken from manufacturer's stock, and shall be complete as required for installation in the structure. After approval, samples may be installed in the work, provided each sample is clearly identified and its location recorded. Samples of the following items, [one] [_____] of each type: [_____].

1.4 GENERAL REQUIREMENTS

The Contractor shall verify all measurements and shall take all field measurements necessary before fabrication. Welding to or on structural steel shall be in accordance with AWS D1.1. Items specified to be galvanized, when practicable and not indicated otherwise, shall be hot-dip galvanized after fabrication. Galvanizing shall be in accordance with ASTM A 123, ASTM A 446, or ASTM A 525, as applicable. Exposed fastenings shall be compatible materials, shall generally match in color and finish, and shall harmonize with the material to which fastenings are applied. Materials and parts necessary to complete each item, even though such work is not definitely shown or specified, shall be included. Poor matching of holes for fasteners shall be cause for rejection. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall provide strength and stiffness. Joints exposed to the weather shall be formed to exclude water.

DISSIMILAR MATERIALS

Where dissimilar metals are in contact, the surfaces shall be protected with a coat of bituminous paint or asphalt varnish.

WORKMANSHIP

Miscellaneous metalwork shall be well formed to shape and size, with sharp lines and angles and true curves. Drilling and punching shall produce clean true lines and surfaces. Welding shall be continuous along the entire area of contact except where tack welding is permitted. Exposed connections of work in place shall not be tack welded. Exposed welds shall be ground smooth. Exposed surfaces of work in place shall have a smooth finish, and unless otherwise approved, exposed riveting shall be flush. Where tight fits are required, joints shall be milled. Corner joints shall be coped or mitered, well formed, and in true alignment. Work shall be accurately set to established lines and elevations and securely fastened in place. Installation shall be in accordance with manufacturer's installation instructions and approved drawings, cuts, and details.

1.7 ANCHORAGE

Anchorage shall be provided where necessary for fastening miscellaneous metal items securely in place. Anchorage not otherwise specified or indicated shall include slotted inserts made to engage with the anchors, expansion shields, and power-driven fasteners when approved for concrete.

PART 2 PRODUCTS

2.1 SHOP PAINTING

Surfaces of ferrous metal except galvanized surfaces, shall be cleaned and shop coated with the manufacturer's standard protective coating unless otherwise specified. Surfaces of items to be embedded in concrete shall not be painted. Items to be finish painted shall be prepared according to manufacturer's recommendations or as specified.

2.2 BOLTS

Unless otherwise noted, structural steel bolts, including nuts and washers, shall conform to ASTM A 325.

STEEL PIPE

Steel pipe shall conform to ASTM A 53, Type E or S.

MISCELLANEOUS PLATES AND SHAPES

Miscellaneous plates and shapes for items that do not form a part of the structural steel framework, such as miscellaneous mountings and frames, shall be provided to complete the work.

STRUCTURAL STEEL DOORFRAMES

Structural steel doorframes shall be neatly mitered and securely welded at the corners with all welds ground smooth. Structural steel shall conform to ASTM A 36.

LOUVER GUARDS, BAR TYPE

Louver guards shall be 1/2-inch round bars, spaced not over 8 inches on center horizontally. Bars shall be securely welded to the angle frame. Guards and fasteners shall be galvanized.

DOORS

Doors shall be constructed of structural steel conforming to ASTM A 36, assembled, welded, and equipped with all required hardware and accessories to complete the installation in the fabricator's shop. The internal square tube stiffeners used in the 10-foot size door shall be steel conforming to ASTM A 500, Grade A. Materials and fabrication of doors shall be in accordance with the applicable requirements of this section, The AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings and the AWS D1.1. Special care shall be exercised during welding to prevent warping. The surfaces shall be flat, parallel, and

plumb after erection. The Contractor shall be responsible for proper installation of the door assembly so that operating clearances and bearing surfaces of the erected door conform to the drawing requirements.

2.7.1 DOOR TROLLEYS

Trolleys shall have sealed ball bearings and shall be designed to ensure ease of operation and uniform loading of wheels. Side plates shall be of malleable iron and shall be connected to each other with at least two through-bolts in addition to the yoke connection.

2.7.2 WEATHERSTRIPPING

Doors shall be weatherstripped with rubber impregnated canvas belting as indicated. Weatherstripping shall be installed with slotted holes in such a manner that it can be adjusted to ensure a complete weathertight enclosure.

2.8 LOUVERS

Louvers shall be galvanized steel and the standard product of a manufacturer regularly engaged in the manufacture of louvers of the type shown, and the louvers provided shall essentially duplicate louvers that have been in successful operation for a period of at least 5 years. Louvers shall not be removable from the outside of the structure. Louvers shall be provided with 140 degrees F fusible link fire damper mechanism, equipped with suitable spring closing device, and 16 mesh insect screens. Blades shall be accurately fitted and edges of louver blades shall be folded or beaded for rigidity.

2.9 VENTILATORS

Ventilators shall be of the stationary type, constructed of galvanized ferrous metal sheets, and shall be furnished complete, including insect screens. The ventilators shall be designed to withstand stresses developed by winds up to and including 125 miles per hour, shall be waterproof and stormproof under all operating conditions, and shall be free from backdraft. The design shall be such that the ventilators will be capable of self-cleaning by the action of the elements, with provision for carrying water and normal, wind-transported soil matter to the outside. Ventilators shall be adequately reinforced and well braced, with joints properly formed. Reinforcing members, braces, bolts, and rivets shall be of galvanized ferrous metal of sufficient size to assure rigid and sturdy construction, shall be properly applied and installed in such manner as to avoid corrosion, and shall be secured in an approved manner.

PART 3 EXECUTION

3.1 OPERATION

Doors shall be manually operated by a spur gear hand chain operator. Operation shall be by pulling on an endless chain through a stationary gearbox with maximum 18-pound pull to move the door. Gear reduction ration shall be 4.4 to 1 or less. The door operator shall not include a clutch. The hand chain wheel shall be equipped with a chain guide that will permit

operation of the hand chain at an angle 10 degrees out from either side of the chain wheel without stripping or jumping the wheel rim. All load carrying parts of the operator shall resist, without damage or permanent deformation, a load of 400 pounds applied vertically to either side of the hand chain while the door is restrained from moving. The door operator shall be equipped with a manual emergency chain release which will release the door from the drive chain. The drive chain will remain intact with the emergency chain release engaged or disengaged. The emergency chain release shall be located as indicated on the drawing. The door shall be provided with a latching mechanism to secure the release both in the engaged and disengaged positions. A bolt and nut type locking mechanism will not be acceptable.

3.2 HOOD

A 20 gage galvanized steel hood shall be installed over the door and rail as indicated. The hood shall be installed on the steel angle frame to form a weatherproof, neat, and rigid structure.

End of Section